

Role of the French Parliamentary Office in the Changing Nuclear Energy Policy[♦]

Kenji Kimura^{*} Hiroshi Kimura^{**}

OPECST (Office parlementaire d'évaluation des choix scientifiques et technologiques) helps the decision making of French Parliament by assessing options of scientific and technological policy. In this process, OPECST holds public hearings and gathers opinions from various participants: experts, industry, citizens and so on. It held many public hearings and assessments on nuclear energy policy in the 1990s where French people came to demand more transparency and independence of the nuclear safety regime than before. So, we can assume that OPECST helped the reform in the 1990s and in the 2000s that finally established the Law on Transparency and Security in the Nuclear Field. This research aims to clarify precisely its functions through a survey of all of the reports of OPECST on nuclear safety policy published in this period and of political decisions related to them. As a result, it shows that OPECST has three functions: it defines problems, elaborates policy recommendations from various opinions, and accumulates its survey results in the form of reports. Nowadays, the form of discussion conducted at OPECST is changing, so we have to learn both its history and recent activities to make a policymaking system that would be suitable in Japan.

I. Introduction

Nuclear energy policy is based not only on technology but also on nuclear technology's relationship with society at the time. After the accident at the Fukushima Daiichi Nuclear Power Plant of Tokyo Electric Power Co. (Fukushima accident), many people began to show their opinions on nuclear energy, which means that the relationship between nuclear technology and society has entered a new stage. In response to such situation, policymakers should develop a system to compile opinions and information from various viewpoints and use them for policymaking¹. This paper aims to analyze one of such systems and provide a basis for future discussions in Japan.

The system that we treat in this research is the French Parliamentary Office for the Evaluation of Scientific and Technological Choices (Office parlementaire d'évaluation des choix scientifiques

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* Researcher, Nuclear Energy Group, Strategy Research Unit, The Institute of Energy Economics, Japan

** Public Outreach NPO

¹ For example, the "Basic Policy for Nuclear Energy" decided by the Japan Atomic Energy Commission and the Cabinet in July 2017 cites a priority initiative "to engage in an interactive dialogue that furthers mutual understanding - avoiding a formal, one-sided style of communication," indicating that the basic policy gives priority to receiving opinions. However, it describes the objective of the initiative as "to address the social concerns of the public about nuclear energy use," falling short of mentioning that the results of such dialogue would be used for policymaking¹.

et technologiques, OPECST)². France attracts attention not only with its unique energy supply structure in which nuclear energy accounts for most of overall power generation, but also with the possession of world-leading nuclear technologies, the export of many nuclear plants and the reprocessing of French and foreign spent nuclear fuels. Therefore, French energy policy serves as a very significant model case that is cited frequently in discussion on nuclear policy and subjected to comparative study in Japan. By paying attention not only to such present conditions but also to the past process leading to the present situation, however, we can find that French nuclear policy has flexibly responded to the changes in its society³. In that process, OPECST worked actively as a parliamentary organization amid growth in public interest in nuclear energy in France in the 1990s, undertaking surveys, public hearings and the preparation of policy recommendations on overall scientific and technological policy issues including nuclear. This paper attempts to interpret OPECST as enabling diversified opinions and information on nuclear energy to be used for policymaking and tries to further clarify its functions. At first, we confirm the role of OPECST in policymaking based on its organizational structure and legal background. Then, we focus on the actual activities of OPECST to implement a practical analysis or consideration. In this process, we treat numerous reports published by OPECST on nuclear safety issues and relevant policymaking actions outside the organization to figure out the unique functions of OPECST.

Although we noted that this paper covers the years after 1990, we shouldn't ignore that changes in French nuclear policy were also seen earlier. Particularly, the development of French nuclear industry seen in the 1960s and 1970s had great influence on nuclear energy policy. Before that, only limited number of politicians and experts had participated in policymaking giving top priority to French national security and independence. Since the 1960s, however, nuclear industry and related companies have growingly participated in policy decisions, resulting in decisions giving priority to economic interests⁴. A typical example was the adoption in 1970 of pressurized water reactors that were excellent in economic efficiency and were then becoming a global standard. Nevertheless, this paper focuses on the changes amid growth in public interest in nuclear energy in the 1990s, because the changes were complicated and difficult to respond to. Regarding the changes in the 1960s and 1970s, the number of nuclear policy stakeholders increased, making it necessary to reflect new stakeholders' opinions in policy. However, the numerical increase was far smaller than in the 1990s. The basic policy of promoting nuclear energy use remained unchanged in the 1960s and 1970s. The issue then was whether priority should be given to state control on nuclear technology or to economic efficiency, representing a shift from one priority to another. The changes were thus relatively easy to understand. Furthermore, it might have been easy for large companies to give their opinions to policymakers because of their close relationships. In contrast, the number of people engaging (at least, willing to engage) directly or indirectly in policy decisions increased substantially through the changes in the 1990s, with their requests regarding nuclear

² As indicated by its name, OPECST covers overall science and technology policies including nuclear policy. However, this paper focuses on the organization's role regarding nuclear policy.

³ See Kimura et al. (2014)²⁾ for the changes in the French nuclear safety policy corresponding to the changes in the relationship between nuclear technology and society.

⁴ However, the original priorities did not disappear but have remained in changing forms.

policy being too diversified to be identified. Moreover, excluding the Greens (French Green Party) that joined the administration, the new stakeholders have been far away from government, making it difficult for policymakers to know their opinions. Despite such problems, France achieved a policy change in response to growth in public interest in nuclear energy by enacting the Law on Transparency and Security in the Nuclear Field (TSN Act)⁵. So, a policymaking (or policymaking assistance) system working in the process is believed to be able to overcome such difficulties. Therefore, it is significant for this paper to analyze the policymaking system. Given that this paper aims to clarify OPECST's functions in realizing the TSN Act that represents a major policy change, the analysis basically focuses on the activities of OPECST in the 1990s. It also considers the organization's activities involving important French energy policy decisions in recent years, looking into how its activities have changed under the nuclear policy conditions transformed dramatically by the Fukushima accident.

A little number of papers on OPECST have been published, and their views on it are almost similar. As noted by Laurent (2004)⁴, Suzuki (2010)⁵, Shiroyama *et al.* (2011)⁶ and others, the activities of OPECST is effective because the members of parliament engaging in policymaking conduct technology assessments on their own for actual parliamentary decisions. Focusing on OPECST public hearings on radioactive waste disposal, Barthe (2002)⁷ clarified that the parliament, which had not been deeply involved in the matter, could take an initiative in progressing the discussion by considering various viewpoints with an intermediary approach and by interpreting even scientific righteousness as one of various views and that once-ignored key information could be found depending on the discretions of *rapporteurs* who lead surveys and discussions. Christian Bataille, member of the Socialist Party, who served as *rapporteur* on the radioactive waste disposal issue, took leadership in enacting the Law on Promotion of Environmental Protection⁸ in 1991. The law is now called "Bataille Act," named after the representative.

The above indicates that OPECST is a parliamentary organization independent from the administration, which collects views and information from people in various positions through public hearings and uses them for its own policy decisions. Here, we should pay attention to the new type of participants to the public hearings who began to give opinions when public interest grew in nuclear energy in the 1990s. They are far away from policy decisions at the government, being different from traditional nuclear energy stakeholders such as experts of nuclear engineering and representatives of nuclear industries. They usually have few means to tell their opinions to policymakers or exert influence on policy. If they are left without opportunities to give policy-related opinions while having such opinions, political distrust may grow up. OPECST can be regarded as an organization that has a function to compile such opinions. The key point is that OPECST not only collects opinions from new-type participants but also harmonize them with opinions and information from traditional stakeholders before providing them to further discussions in the parliament.

OPECST's profile can be described as above. However, the such explanations are based on

⁵ The law clearly instituted the Nuclear Safety Authority (Autorité de sûreté nucléaire, ASN), one of the world's most independent and transparent nuclear safety regulators, and a nuclear policy information disclosure system.

general observations on OPECST. The above-mentioned earlier studies focused only on OPECST and analyzed the organization mainly from theoretical viewpoints. In contrast, this paper positions OPECST as one of the players acting amid French nuclear policy changes and links its activities to the overall policy change process in order to clarify the roles OPECST played in policy changes. This paper would like to take a further step to clearly the functions of OPECST based on actual activity reports including public hearing minutes. Barthe (2002) as well as this paper focuses attention on public hearings. While Barthe (2002) pays attention to a specific subject, this paper tries to make a comprehensive analysis compiling surveys and discussions conducted by OPECST until the enactment of the TSN Act and relevant policymaking activities and to analyze their relationship.

The National Commission for Public Debate (Commission nationale du débat public, CNDP) is often cited as an organization that has been active as long as OPECST and features objectives and functions similar to those of OPECST. Certainly, CNDP collects a wide range of opinions through public debate to disclose and consider information on large-scale construction projects⁶. But, strictly speaking, the fact that CNDP focuses on construction projects⁹) means the organization is not a system that functions in regard to policymaking. Moreover, CNDP has dealt with fewer nuclear projects⁷ than OPECST. So, we would like to focus on OPECST in this paper.

II. Design and Functions of OPECST

1. Overview of OPECST

OPECST is an organization established in French parliament under a 1983 law to “inform the parliament of the consequences of scientific and technological options and to enlighten its decisions¹⁰.” There is a ceiling on the number of standing committees in French parliament – otherwise, special committees or investigation committees can only be established within limited terms – and so, OPECST was founded as a standing “parliamentary delegation” added to the 1958 ordinance⁸ on the Function of Parliament¹¹). Concerned about parliament’s declining influence in the scientific and technological issues, some members of parliament were motivated to secure parliament’s policymaking initiative by creating OPECST similarly to the Office of Technology Assessment in the U.S. Congress¹²).

OPECST consists of eight members each from the Senate and the National Assembly, and each member has a deputy⁹. OPECST members are appointed reflecting the distribution of political groups in each of the assemblies. They have expertise in science and technology. Additionally, a scientific advisory committee comprising 15 experts¹⁰ in scientific and technological fields has

⁶ Construction projects that CNDP treats are not limited to nuclear facilities.

⁷ The number of nuclear-related projects has been based on the list of project themes published on the CNDP website (<https://www.debatpublic.fr/projets-en-debat>)

⁸ An ordinance is an administrative legislation implemented by the government based on parliamentary approval.

⁹ Under a February 2000 revision, OPECST now consists of 36 members, 18 each from the Senate and the National Assembly. A provision on deputies was deleted¹³).

¹⁰ Under a February 2000 revision, the committee now comprises 24 experts¹⁴).

been established to provide support and advice to OPECST members¹⁵⁾.

OPECST cannot implement any survey at its own discretion but can do so only based on a parliamentary initiative¹⁶⁾. In response to a specific survey initiative, OPECST elects a *rapporteur* on the proposed topic who considers whether the survey is adequate or feasible and how to implement the survey if it is feasible. If OPECST decides to implement the survey¹¹⁾, the *rapporteur* takes leadership in organizing a working group of multiple experts in the relevant field to investigate the topic and assess policy options. If it is difficult for the *rapporteur* to carry out his mission with ordinary investigative authority, the *rapporteur* may request the initiative-proposing chamber to provide an authorization to receive all necessary information other than national and diplomatic secrets over up to six months¹⁷⁾. To collect opinions and information from a wide range of players during the survey, the *rapporteur* may conduct interviews and hold public hearings. In public hearings for a survey on nuclear policy, various actors including nuclear technology experts, representatives from a nuclear safety regulatory body, those from industries such as Électricité de France and Framatome, and those from environmental groups or organizations for nuclear information participated to give their opinions and information based on their respective positions.

After such investigations and discussions, OPECST prepares and publishes a report compiling them. The report includes OPECST survey results, relevant policy recommendations and almost all of the public hearing minutes. On some topics such as nuclear safety that we treat later and radioactive waste disposal, surveys and reports are conducted multiple times over multiple years. In total, OPECST has so far published about 200 reports, of which nuclear and other energy issues account for about 20%¹²⁾. From the creation of OPECST in 1983 to 1988, OPECST members played supplementary roles in the surveys led by scientists outside the organization. However, reports written by outside scientists included many technical terms and took much time to be revised to become easier for ordinary people to understand. In fact, only two reports were published during the period, which aroused distrust of the effectiveness of OPECST¹³⁾. The problem was substantially improved when OPECST was reorganized on the occasion of a legislative election in 1988. After the reorganization, members of parliament who had scientific backgrounds to sufficiently understand opinions from experts and identified needs at the parliament requesting OPECST surveys were arranged to take leadership in surveys and discussions, allowing the organization to produce numerous useful fruits. OPECST thus successfully earned more trust not only from their colleagues but also from mass media¹⁸⁾.

¹¹⁾ Until 2000, a survey on the cause of AIDS was the only case that was found as inadequate for the OPECST mission¹⁹⁾.

¹²⁾ The number of reports on nuclear and other energy issues has been counted being based on the list of reports published on the OPECST website.
(<http://www.senat.fr/opecest/rapport.html>, http://www.senat.fr/opecest/rapports_sessions_anterieures.html)

¹³⁾ The reports were that on air pollution and acid rain and that on the impact of the Chernobyl nuclear power station accident.

2. Securing Independence and Fairness

An organization that compiles opinions and policy recommendations on science and technology policies must make its decisions independently from the administration and secure enough reliability in order to allow its reports or recommendations to have influence on policymaking. As noted above, OPECST is a parliamentary organization consisting mainly of members of parliament. Since 1988, particularly, they have taken leadership in surveys and discussions at OPECST. Someone might be afraid that the close link between OPECST and the parliament could cause problems with its independence and neutrality of decisions. In contrast to OPECST, the technology assessment agency in the German federal parliament (Büro für Technikfolgen-Abschätzung beim Deutschen Bundestag, TAB) serves as an agency outside the parliament, commissioning the Karlsruhe Institute of Technology to undertake technology assessment¹⁴. Meanwhile, OPECST can be regarded as a parliamentary organization that excludes influence both from the administration and from scientific experts and makes fair decisions. So, we would like to make an institutional analysis to confirm that OPECST is designed to make sure this point.

In France, the parliament has traditionally kept watching and checked the work of the administration. The constitution, established on the launching of the current Fifth Republic, has given greater authority to the president than earlier and created various restrictions on parliamentary authority. Nevertheless, the parliament keeps its role of watching the administration. In fact, the administration has modified its decisions by the request of the parliament. And the constitution itself has been amended in a manner allowing the parliament to restore some of its power¹⁵. By implementing surveys and discussions in the parliament of such position, OPECST has excluded the influence from the administration as much as possible.

Attention should be paid not only to the relationship between OPECST (parliament) and the administration. As noted earlier, science and technology experts who take part in the advisory committee or working groups are not treated as official OPECST members. Moreover, as the scientific advisory committee consists of experts in various fields, the panel doesn't provide very much opinions on matters that require high level of expertise in specific fields for actual surveys²⁰. And selection of members of the working group of experts in a specific field is required under OPECST's bylaw to "reflect the diversity of opinions and interests in that field²¹." In this way, experts' involvement in core OPECST operations is limited, and even when they involve, their influence would be balanced as much as possible through selection of personnel.

Not only experts, but also members of environmental groups, consumer groups, professional groups, etc. fail to be OPECST members. An original bill for creating OPECST had provided that an advisory committee comprising 15 members of such groups would also be established²².

¹⁴ It must be noted that parliamentary technology assessment organizations' positions can differ depending on the axe of analysis. From the viewpoint of the relationship with the parliament, OPECST would be placed in opposite to TAB. Compared with the Netherlands' Rathenau Institute and the Denmark Board of Technology (DBT) that give priority to forming consensus through discussion in which citizens participate, however, OPECST and TAB similar characteristics that depends on experts for analyzing specific issues and providing information to the parliament²³.

¹⁵ A constitutional amendment in 2008 specified the control on the administration and the assessment of public policies²⁴ in addition to legislation as the functions of Parliament.

However, the bill enacted finally in 1983 provided that OPECST might hear opinions from such panel²⁵). This means that they attempted to restrict the panel's influence.

Finally, minutes of deliberations and public hearings, as well as survey reports by OPECST must undergo inhouse checks and approval before being published^{26), 27)}. These facts suggest that OPECST secures parliament's independence regarding its decisions while collecting a wide range of opinions from various players.

Based on such independence, OPECST explains that its *raison d'être* is to prevent discussion on scientific issues from being preoccupied both with scientific approaches alone and with emotional or subjective approaches originating from a lack of understanding about scientific facts²⁸⁾. OPECST has frequently argued with wrong public opinions, popular theories among experts and official government statements, according to Claude Birraux who has served as *rapporteur* for a survey on nuclear safety²⁹⁾.

It is apparent that OPECST not only restricts external influence but also gives consideration to the balance of influence within the parliament. In this respect, membership distribution of OPECST is adjusted to the parliamentary seat distribution between political parties to reflect election results as accurately as possible, as noted above. And OPECST can start its surveys only at the request of parliament. More specifically, OPECST launches the first phase of a survey:

- ① When the Senate or National Assembly board decides to propose the survey,
 - ② When the Senate or National Assembly board proposes the survey at the request of a party's head,
 - ③ When the Senate or National Assembly board proposes the survey as requested by a certain number of members of parliament (at least 40 Senators or 60 National Assembly members),
- or
- ④ When a parliamentary committee proposes the survey³⁰⁾.

While survey topics are proposed through multiple paths, adopted topics in any case reflect the interest of a certain number of members of parliament and is adequate for an OPECST survey.

Such institutional system secures the independence and fairness of OPECST and allows the organization to provide policy recommendations deserving support from many people.

III. Analysis of OPECST Reports

We here analyze how OPECST dealt with the social change of growing public interest in nuclear energy in the 1990s, based on OPECST activity records and on political decisions. Important for the activity record analysis are reports of OPECST on its surveys. As explained above, these reports include survey results, minutes of public hearings that is held to collect opinions on the survey topics and final policy recommendations. Among them, public hearing minutes are particularly important because public hearings apparently provide OPECST with opportunities to contact new-type participants and collect opinions and requests that had not been

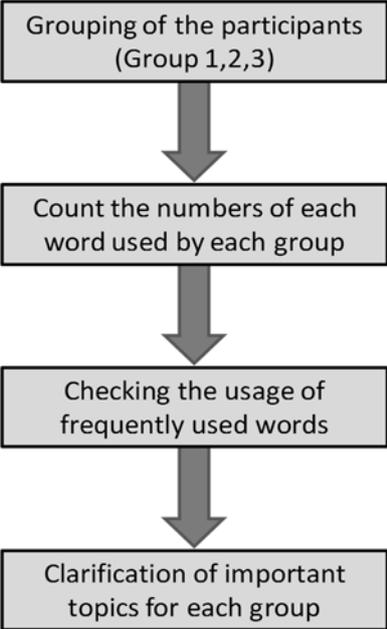
taken up for policymaking earlier. Many of the reports published on nuclear policy in the 1990s were those made through surveys over multiple years under the title of “nuclear facility safety management¹⁶.” The first of these “nuclear facility safety management” reports came in 1990. The last one was made in 1999 to integrate earlier arguments and can be regarded as a conclusion of a series of surveys. In this chapter, we take a panoramic view of the nine reports published under the title between 1990 and 1999 and clarify the relationship between topics covered by these reports and relevant policymaking decisions outside OPECST.

As mentioned above, an OPECST report comprises (1) survey results, (2) public hearing minutes and (3) policy recommendations. Of them, survey results account for a large part of the report but are summarized in an easy-to-understand form. Policy recommendations account for a smaller part and are written clearly. Therefore, the key points of survey results and policy recommendations are easy to comprehend. However, public hearing minutes have huge quantities and most of them come in forms that make it difficult to identify key points. In analyzing public hearing minutes, therefore, we first use computation to sort out key points of arguments and develop guidelines for understanding minutes appropriately. In the following, we explain our method of analysis.

1. Approaches for Analyzing Minutes

Fig. 1 shows an outline of approaches we used for analyzing public hearing minutes. For instance, we here take up minutes in the report published in 1990 when the first survey on nuclear facility safety management was implemented.

Fig. 1 Flowchart of the Analysis of the Minutes of the Public Hearings



¹⁶ Even under the same title, themes differ by report.

First, public hearing participants in each year are classified into the following three groups¹⁷. The classification corresponds to the phases in the French nuclear policy history, as discussed at the outset. While Group 1 and 2 comprises people having common policy ideas and interests to make it easy to summarize their key points, Group 3 covers new-type participants emphasized in this paper. The classification can be expected to highlight the salient features of new-type participants.

Group 1: Government officials and nuclear experts (who have engaged in policy decisions since the initial phase)

Group 2: Nuclear industries and their affiliates (who have participated in policy decisions since the industrialization of French nuclear technology)

Group 3: Others including environmental and civic group members, and experts or government officials in non-nuclear fields (who have participated or become willing to participate in policy decisions amid growth in public interest in nuclear energy)

Of the participants of public hearing held in 1990, Group 1 consisted of 5 people from the Atomic Energy Commission (Commissariat à l'énergie atomique, CEA), the Institute of Nuclear Protection and Safety (Institut de protection et de sûreté nucléaire, IPSN) and the Central Service for the Safety of Nuclear Installations (Service central de sûreté des installations nucléaires, SCSIN), nuclear safety regulator at that time. Group 2 comprised 18 representing EDF, Cogema for nuclear fuel business, energy-related trade unions and other organizations. Group 3 covered 4 participants including a Green Party member (serving also as European Parliament member) and representatives from the Friends of the Earth and the Robin des Boi, both environmental groups, and the Association of Scientists for Information on Nuclear Energy (Groupement des scientifiques pour l'information sur l'énergie nucléaire, GSIEN).

In line with the classification, participants' remarks on minutes were divided into the three groups. Then, we automatically counted the number of appearances for all words in each group's text data¹⁸. From the counting, however, we excluded articles, definite articles, pronouns, prepositions and some verbs that appear frequently while having little meaning. Singular and plural forms of nouns and conjugated words were considered as the same words as much as possible. From the counting results, we extracted the 10 most frequently used words as shown in Table 1 (English translations are in parentheses).

¹⁷ Some participants who were difficult to classify under this rule were put into one of the three groups according to our case-by-case judgement. Participants whose affiliations were neither written in OPECST reports nor identified by our survey were classified as "unknown" and excluded from any of the groups.

¹⁸ The reports excluding those in 1996 and 1998 have been published in image format, providing no text data. So, we implemented optical character recognition (OCR) processing for the image data to convert it into text data. After the processing, we visually confirmed the results.

**Table 1 The Most Frequently used Words in the Public Hearings in 1990
(with English translation)**

	Group 1		Group 2		Group 3	
	Word	Used	Word	Used	Word	Used
1	sûreté (safety)	129 times	sûreté (safety)	325 times	nucléaire (nuclear)	97 times
2	IPSN	77 times	nucléaire (nuclear)	237 times	plutonium (plutonium)	47 times
3	installation (installation)	67 times	étude (study)	130 times	centrale (power plant)	44 times
4	étude (study)	66 times	EDF	127 times	CEA	40 times
5	nucléaire (nuclear)	64 times	centrale (power plant)	98 times	EDF	36 times
6	réacteur (reactor)	64 times	plutonium (plutonium)	94 times	information (information)	30 times
7	CEA	62 times	combustible (fuel)	93 times	usine (plant)	30 times
8	EDF	57 times	Mox	92 times	France	29 times
9	exploitant (operator)	57 times	organisation (organization)	72 times	La Hague	27 times
10	technique (technical)	46 times	risqué (risk)	72 times	sûreté (safety)	27 times

In this way, key words in remarks of each group were made available. Then, we returned to the text data to check the contexts for using these words. We found that “sûreté (safety),” “installation (installation)” and “étude (study)” among the most frequently used words in Group 1 were apt to be used for remarks on research on nuclear safety. Remarks including research institute names such as “IPSN” and “CEA” were explaining such institutes’ activities. As for Group 2, we found that their key words are frequently used to explain their nuclear safety management or in the context of plutonium and mixed oxide (MOX) fuel. Regarding Group 3, we confirmed that “information (information)” was frequently used for promoting information disclosure, while plutonium (plutonium),” “usine (plant)” and “La Hague” emerged frequently in remarks for describing risks of La Hague nuclear fuel reprocessing plant and the reprocessing of spent nuclear fuels.

Taking the above method, we could finally pick up major topics for each group from the 1990 public hearing minutes. The frequently used key words were extracted automatically and how they were used can help us to efficiently read and summarize the minutes. Then, we can sort out matters of interest to and arguments of each group for further analyses. It is difficult for us to get such results if we used context analysis software¹⁹.

¹⁹ The context analysis software focuses on the relationship between a word and adjacent frequently used words. However, such software is apparently unsuitable for this paper’s objective for the following reason. In the minutes in the 1991 report, for example, “commission” was used very frequently by Group 2 and 3 participants. We can’t find out its meanings and significance only from this word. When we read relevant part of the minutes, we find that the “commission” referred to the Local Information Commission (Commission locale d’information, CLI) in almost all cases. But in many cases, they just used the word “commission” in long question-and-answer sessions. This indicates that factors for determining the context for using a key word do not necessarily exist as specific words adjacent to the key word. Therefore, we concluded that the context analysis software was not suitable for our objective.

2. Transition of Topics covered by OPECST

We applied the same method as explained in the previous section to the public hearings in other years and tabulated key points and recommendations in each year's report and relevant nuclear safety policy decisions into Table 2. Numbers put after each topic of public hearings represent group numbers: (1), (2), (3). Actual policy decisions apart from reports or discussions are shaded in the table. As the text of 1991 decree²⁰ itself has not enough descriptions of the reorganization of the SCSIN into the Directorate for the Safety of Nuclear Installations (Direction de la sûreté des installations nucléaires, DSIN), we quoted the decree's outline from Saint Raymond (2012)³¹. Therefore, policy decisions here may not necessarily be those made exactly at that time.

The table indicates that participants of Group 1 and 2 tended to discuss their respective studies and business projects, that participants of Group 3 were apt to point out the problems at that time or express their concerns and that topics and recommendations cited in those reports were reflected in actual policy decisions. In the next section, we attempt to further deepen the analysis and discussion.

²⁰ A decree is an administrative legislation by the president or prime minister. It may be translated as a government ordinance.

Table 2 Topics of Each Report of OPECST and Related Political Decisions³²⁾⁻⁴⁴⁾

	Survey	Public hearing	Recommendation
1990.12 Report of OPECST ³²⁾	<ul style="list-style-type: none"> Nuclear safety consolidated by the international organizations Nuclear legislation in other countries Nuclear safety organizations in France 	<ul style="list-style-type: none"> Research on nuclear safety (1), (2) Activities of CEA and IPSN (1) Plutonium and MOX fuel (2), (3) Power of CEA (3) Promotion of public information (3) La Hague reprocessing plant and risk of reprocessing (3) 	<ul style="list-style-type: none"> Reform of SCSIN Reform of SOPRI Independent budget for IPSN Basic law for nuclear safety Promotion of radioprotection More transparent nuclear policy Cooperation with international organizations Further work of OPECST
1991.05 Decree on the organization of the Ministry of Industry ³³⁾	<ul style="list-style-type: none"> Reorganize SCSIN into DSIN The same position as other pro-nuclear directorates Own budget requirement Placed under the Ministry of Industry and the Ministry of Environment 		
1991.12 Report of OPECST ³⁴⁾	<ul style="list-style-type: none"> Group for safety inside CEA Group for safety in La Hague reprocessing plant of COGEMA Maintenance and safety in the nuclear installations of EDF Control in Phénix and in Superphénix Necessity of establishment of the radioprotection authority Status of CLI Development of new types of reactor in France and in other countries 	<ul style="list-style-type: none"> Promotion of public information <ul style="list-style-type: none"> Problems of CLI (1), (2), (3) Nuclear safety in Central and Eastern Europe (1), (2) Nuclear safety and maintenance (1), (2) Safety of new types reactors (1), (2) 	<ul style="list-style-type: none"> Reform of DSIN Independent budget for IPSN Obligation to report the status of La Hague reprocessing plant More effective maintenance of EDF Promotion of radioprotection Research on old NPPs More transparency Participation of safety authority into the development of new types of reactor Further work of OPECST
1992.06 Report of OPECST ³⁵⁾	<ul style="list-style-type: none"> Activities of IAEA in 1991-1992 Nuclear safety in Central and Eastern Europe Nuclear safety in developing countries Group for nuclear safety and the off-site emergency plan (PPI) in Tricastin NPP 	<ul style="list-style-type: none"> Nuclear safety for civil <ul style="list-style-type: none"> Purpose and intention of PPI (1) Status and problem of PPI (3) Actions and information in an emergency case (1), (2), (3) A fast-breeder reactor (1), (2), (3) 	<ul style="list-style-type: none"> Support for Central and Eastern Europe by France and EC through IAEA Research and improvement of radioprotection and PPI in Tricastin Establishment of systems for emergency measures in every region Support for Central and Eastern Europe by France through EC
1994.02 Report of OPECST ³⁶⁾	<ul style="list-style-type: none"> Nuclear policy and nuclear safety in the UK Nuclear phase-out, decommissioning and radioprotection in Germany Transportation of radioactive materials Radioprotection for labor Status of Superphénix 	<ul style="list-style-type: none"> Radioprotection for labor <ul style="list-style-type: none"> Radiation control for labor (1), (2) Management of information related to radiation (1) Case study on public inquiries (1) Transportation of radioactive materials (1), (2), (3) A fast-breeder reactor (3) 	<ul style="list-style-type: none"> Control on transportation of radioactive materials Radioprotection for labor Reform and promotion of public inquiry Reform of CLI
1994.12 Report of OPECST ³⁷⁾	<ul style="list-style-type: none"> Decommissioning Nature of radioactive effluent and measures for it 	<ul style="list-style-type: none"> Decommissioning <ul style="list-style-type: none"> Research (1), (2) Problem (1), (2) 	<ul style="list-style-type: none"> More research on: <ul style="list-style-type: none"> radioprotection decommissioning radioactive effluent
1996.03 Report of OPECST ³⁸⁾	<ul style="list-style-type: none"> Radioprotection Low-level waste disposal Radioactive effluent 	<ul style="list-style-type: none"> Low-level waste (1), (2), (3) Radioprotection (1), (2), (3) 	<ul style="list-style-type: none"> Reconsidering of the norm of radioprotection More transparent disposal of low-level waste Reconsidering of evaluation method for radiation health effect
1997.03 Report of OPECST ³⁹⁾	<ul style="list-style-type: none"> Maintenance in the nuclear installations of EDF Radioprotection for temporary workers Project of Prof. Carlo Rubbia (a new type of reactor) 	<ul style="list-style-type: none"> Project of Prof. Carlo Rubbia (1), (2), (3) 	<ul style="list-style-type: none"> More secure maintenance in the nuclear installations of EDF and inspection on it Promotion of radioprotection for temporary workers Promotion of the project of Prof. Carlo Rubbia
1998.05 Report of OPECST ⁴⁰⁾	<ul style="list-style-type: none"> Development of EPR 	<ul style="list-style-type: none"> EPR project (1), (2), (3) 	<ul style="list-style-type: none"> Preliminary procedure of construction project of nuclear installation Cooperation between France and Germany, and with Europe
1998.12 Report of Le Déaut ⁴¹⁾	<ul style="list-style-type: none"> Divided competence of nuclear safety organizations Status of DSIN and IPSN Weak function of radioprotection in the field of nuclear safety Credibility of the nuclear safety system Nuclear safety and radioprotection in the U.S. and in European countries 		<ul style="list-style-type: none"> Reform of nuclear safety system <ul style="list-style-type: none"> Integrate radioprotection with nuclear safety Separation of IPSN from CEA Establishment of an Independent Administrative Authority Promotion of nonproliferation More transparency <ul style="list-style-type: none"> Obligation to disclose Control on the nuclear safety authority by the Parliament Basic law on nuclear for more transparency Development of international cooperation, especially with European countries
1999.03 Report of OPECST ⁴²⁾	<p>(Synthetic report)</p> <ul style="list-style-type: none"> Domains in which more rapid progress is desirable <ul style="list-style-type: none"> International cooperation Radioprotection Satisfactory evolution <ul style="list-style-type: none"> Nuclear safety authority Nuclear safety organizations in public institutions and in industries Suspended problems <ul style="list-style-type: none"> Decommissioning Radioactive effluent Mining residual 		
2002.02 Decree on IRSN ⁴³⁾ and Decree establishing DGSNR ⁴⁴⁾	<ul style="list-style-type: none"> Reorganize IPSN into IRSN that is separated from CEA Integration of competence between IPSN and Ionizing Radiation Protection Office (OPRI) Enable IRSN to conduct researches on radioprotection Placed under the Ministry of Defense, the Ministry of Environment, the Ministry of Industry, the Ministry of Research and the Ministry of Health Reorganize DSIN into DGSNR Add the competence below: <ul style="list-style-type: none"> Safety of the transportation of radioactive materials Prevention and reduction of health risks caused by radiation Control on radioactive effluent and wastes from nuclear installations Survey on radioprotection in France and other countries and information for related Ministries Public information about nuclear safety and radioprotection Placed under the Ministry of Industry, the Ministry of Environment and the Ministry of Health 		
2006.06 TSN Act	<ul style="list-style-type: none"> Establishment of ASN, an Independent Administrative Authority System for public information <ul style="list-style-type: none"> Local Information Commission (CLI) High Committee for Transparency and Information on Nuclear Safety (HCTISN) Nuclear installations and transportation of radioactive materials <ul style="list-style-type: none"> Rules, dispositions and penalties Procedure of inspection 		

3. Discussion: From the 1990s to Enactment of the TSN Act

We have explained that OPECST conducts public hearings to collect opinions from various perspectives and provide them as effective policy options to the upper-level policymaking system. Here, we would like to further clarify such OPECST functions. By deepening our analysis and referring to the policy discussions and events both inside and outside of OPECST as tabulated in Table 2 of the previous section, we can highlight the functions of OPECST more clearly than earlier studies. As a result of our deeper analysis, the OPECST functions may apparently be summarized into the following three points. Based on its independence and fairness as analyzed in Chapter II, OPECST has effectively performed these functions.

(a) Identifying and raising issues

The first OPECST function is to identify and raise topics that could be policy issues. This function can be remarkably highlighted by the minutes of public hearings in 1990, the first one of the series of reports. While the survey in 1990 report provided outline of nuclear safety efforts of international organizations, France and other countries respectively, public hearing participants discussed a wide range of topics in line with each group's positions and interests independently from the survey topics. This may be because OPECST exceptionally²¹ held a hearing session for each participant or each group of participants belonging to the same organization in the year, making it easier for each participant to declare his own interest. Anyway, public hearings in the year were very significant for setting issues for later discussions. For example, participants of Group 1 reported CEA and IPSN activities while those of Group 3 pointed out the strong influence of the CEA as a research and development organization in the nuclear safety field. As a result, OPECST recommendations in 1990 and 1991 included the improvement of the independence of IPSN by giving them an independent budget. This recommendation was discussed more in detail and was put into new recommendations in a non-OPECST report compiled by Socialist OPECST member Jean-Yves Le Déaut in 1998. And in public hearings in 1990, participants of Group 2 explained the safety management in the nuclear industries and the handling of plutonium and MOX fuel, while Group 3 pointed out risks regarding the radioactive materials. Then, the 1991 report took up EDF nuclear facility maintenance operations and the safety arrangements for La Hague nuclear fuel reprocessing plant where they handle the MOX fuel. Furthermore, Group 3 participants in 1990 also discussed the promotion of information disclosure, which led the year's OPECST recommendations to include the reform of the Local Information Commission (Commission locale d'information, CLI). In the next year, the reform of CLI became one of the topics in the 1991 OPECST report and dominated public hearing discussion in the year²². While the frequency of the word "radioprotection" was not so high in public hearings in 1990, we can find out that Group 3 participants were concerned with radioprotection when they referred to MOX fuel or La Hague

²¹ In most of the reports in other years, each public hearing session was held under a specified theme involving a larger number of participants.

²² While there were four major topics for public hearings in 1991, CLI discussion accounted for half of the minutes of the year.

reprocessing plant. In this sense, we can say that the arguments in the reports published later reflected such underlying concerns of Group 3. In contrast, we can't deny that the function of OPECST public hearings to search and identify issues for later years were weakened after 1991 since the topics in public hearings were in line with survey topics of the same year. However, they performed a new function to clarify issues behind topics fixed for each year and enrich the contents of OPECST reports.

(b) Proposing feasible policy options

Functions of OPECST go beyond the identification and raising of issues. The organization collects opinions from various public hearing participants. Then they compile a policy option to solve the issues reflecting the opinions if it is possible. This function is to identify opinions and positions surrounding an issue, find a common opinion among them if any, consider its feasibility in the realistic social and political conditions and compile a concrete policy option. The function can be highlighted particularly by an analysis on CLI arguments as mentioned in (a). While the survey in 1990 report made little mention of CLI, the year's recommendations included a very concrete CLI reform proposal. This is because a survey on regional CLIs had already been implemented since 1989. Details of the survey were put into the 1991 OPECST report. According to the details, the minister of industry implemented various CLI reform measures in 1989 and 1990 in response to regional CLI representatives' requests made since before 1989, which called for improving their independence from EDF and their cooperation with the Ministry of Industry. However, the effects of these measures were assessed as insufficient⁴⁵.

In such situation, CLI issue dominated public hearings in 1991 as mentioned above. Then, many former CLI members and other people concerned participated in these public hearings. They are involved in any of the three Groups of participants. The participants explained CLI activities, pointed out problems of CLI and proposed its improvements. Irrespective of the Groups, they mainly called for securing CLI's independence and competence. Among the participants, GSIEN representative Monique Sené (Group 3) made especially effective statement. Based on her experience in CLI for the Flamanville nuclear power plant and that for La Hague nuclear fuel reprocessing plant, she pointed out that the Flamanville CLI lacked capabilities to collect information on its own, while the La Hague CLI financially depended on Cogema⁴⁶. Other Group 3 participants also noted that regional CLIs depended financially on nuclear industries. Apart from the independence, Jean Anciaux, secretary general of the Inter-ministerial Committee on Nuclear Safety (Comité interministériel de la sécurité nucléaire) (Group 1), pointed to the weakness of the legal basis of CLI⁴⁷.

As is shown in Table 2, the "recommendation" part of the 1991 OPECST report made no mention of CLI issue. Its "survey" part, however, included some recommendations that indicated possible picture of future CLI. The recommendation called for integrating multiple CLIs within each department into a Departmental Commission of Information and Surveillance (Commission départementale d'information et de surveillance, CDIS). Although the CLIs at the time had been established voluntarily based on the notice from Prime Minister Mauroy in 1981, OPECST

recommended to make mandatory the creation of CDIS⁴⁸⁾ and tried to specify its roles⁴⁹⁾. Making it mandatory by law means the clarification of its legal basis, and the specification of its roles would secure the competence of CDIS. So, the recommendation reflected the opinions given by each group at public hearings. However, the recommendation didn't mention the commission's financial dependence on nuclear industries which was pointed out by Sené. In fact, proposed sponsors of CDIS still included such industries⁵⁰⁾. This was the same case with the recommendation in the 1990 OPECST report and the 1998 Le Déaut report⁵¹⁾. The financial independence from industries was realized at last when the TSN Act was established in 2006. OPECST thus compiled the results of its own surveys and opinions collected through public hearings into feasible policy options in the form of recommendation, although the timings of realization is different.

While OPECST collects opinions through public hearings, it is important that its goal is not to form a consensus. For instance, while the Super Phoenix fast breeder reactor that was to restart operation in the first half of the 1990s after a temporary shutdown was payed attention at OPECST public hearings, recommendations in its report made no mention of the matter. In fact, OPECST only summarized opinions on the matter in its February 1994 report even after many participants presented their opinions concerning the safety of the Super Phoenix in the public hearings reported in 1992 and those in February 1994. The Super Phoenix FBR was finally restarted in 1994²³⁾. This case indicates that when there are clearly opposing opinions to ongoing policies or projects, OPECST devotes itself to summarizing and reporting the oppositions rather than resolving the oppositions.

(c) Accumulating results through long-term activities

There is no legal requirement for the parliament to discuss or consider the results of survey conducted by OPECST. In fact, however, topics and recommendations put into OPECST reports have had influence on the policy changes led by the parliament, as shown in Table 2. Several earlier studies also concluded that parliamentary decisions have been linked more directly to the activities of OPECST than to those of other parliamentary technology assessment organizations. The third OPECST function might explain these facts. Here, we would like to focus on the fact that the report of Le Déaut published in 1998 directly served to make the reorganization of the IPSN into the Institute of Radioprotection and of Nuclear Safety (Institut de radioprotection et de sûreté nucléaire, IRSN) and the DSIN into the Directorate General for Nuclear Safety and of Radiation Protection (Direction générale de la sûreté nucléaire et de la radioprotection, DGSNR) in 2002 and establishment of the 2006 TSN Act. Le Déaut, representative of the Socialist Party, has long served as OPECST president. While Le Déaut has never been *rapporteur* for a survey on nuclear facility safety management, he has frequently participated in public hearings and discussions in OPECST²⁴⁾. This indicate that he has had much experience with OPECST activities regarding that matter. Such person prepared the report as requested⁵²⁾ on the premise that it would be used for legislative

²³⁾ The Super Phoenix FBR came to a halt again in 1997.

²⁴⁾ After the report was completed, OPECST members discuss whether the report should be published and which topics are feasible for further surveys. Details of this discussion is also recorded in the report.

processes. Then, bills were worked out based on the recommendations of the report and enacted into law or decree through discussions at parliamentary sessions over a long term. Although some topics including the transformation of regulatory bodies into independent administrative agencies were proposed for the first time in Le Déaut report, many topics such as inclusion of radioprotection into nuclear safety management and the reform and transparency of IPSN were discussed frequently by OPECST. These topics were further discussed and compiled into more detailed recommendations in Le Déaut report. From these facts, we can say that OPECST has conducted long-term discussions showing the functions of (a) and (b) and accumulating the results to contribute to facilitating and enriching surveys and reports linked directly to the development of bills.

Why could OPECST continue its activities to support policy changes over a long term? It might be because of its establishment as a permanent parliamentary delegation, its fairness secured by parliamentary leadership and its confidence gained through actual achievements. In addition, OPECST has enough and appropriate human resources, status and budget to support its long-term activities. Its status is established through the clear definition of OPECST as a parliamentary organization. Its human resources (members of parliament) are those who have incentives to utilize the results of OPECST for policymaking, and so they can conduct long-term activities without losing OPECST philosophy. And its budget has been stably provided by the government as it is a parliamentary organization. Certainly, there may be a possibility that the budget for OPECST could be cut off for some reason, as is the case with the U.S. Office of Technology Assessment. But, at least in the period we observed in this paper, stable financial resources surely supported the continuous OPECST activities.

Another key point here is that just repeating discussion cannot lead to the accumulation of results. The compilation of discussion results into reports is the most important factor to support the accumulation. The decree for the SCSIN reorganization, which came in 1991 without such procedure just after the first OPECST report, didn't specify the change in the organizational structure. The change done at the time was an automatic change resulting from the shift of the SCSIN's position from a "Service" to a "Directorate". When they were required to take more drastic measures to deal with the changing situation, France came up with a very realistic and feasible policy for the society after identifying and discussing issues related to nuclear technology. We would like to emphasize that OPECST's long-term surveys and discussion and the accumulation of its results have contributed to the policymaking.

IV. Toward the Enactment of the Energy Transition Act

The previous chapter analyzed OPECST activities in the 1990s toward the enactment of the TSN Act. This chapter additionally covers more recent OPECST activities and analyzes whether OPECST has maintained its functions even after the Fukushima accident.

In August 2015, France enacted the Law on Energy Transition for Green Growth (Energy Transition Act) which provides the targets of reduction of greenhouse gas emission, reduction of

energy consumption and share of renewable energy in energy consumption. At the same time, the Energy Transition Act sets a limit on domestic nuclear power generation capacity to 63.2 gigawatts⁵³⁾ which is current total capacity in the country and sets a target to lower the share of nuclear energy in power generation to 50% by 2025⁵⁴⁾ (currently about 75%). The law resulted from a series of arguments over the revision of energy policy regarding the impact of the Fukushima accident. Right after the accident, OPECST launched a survey and discussions on the revision of nuclear energy policy²⁵⁾. The survey, though titled “Future of French Nuclear Industry (L’avenir de la filière nucléaire en France),” focused on new and alternative technologies such as energy efficiency, energy storage, renewable energy and so on. Therefore, most of the participants in public hearings during the survey were experts or industries of such technologies. There were no participants from environmental or civic groups. Due to the change in survey targets, the characteristics of public hearings differed from those in the 1990s.

According to the final report on the survey published in 2011, OPECST conducted four public hearings on the survey, titled as follows:

- ① European energy policy
- ② Evolution of power consumption and energy saving
- ③ Prospects for nuclear industry
- ④ Alternative energy

Participants in the four hearings included the following:

- ① CEA²⁶⁾ and International Energy Agency (IEA) officials, French and other energy policymakers
- ② Experts and industries of energy-saving equipment
- ③ Experts and industries of nuclear energy from CEA, EDF, Areva, etc.
- ④ Experts and industries of renewable energy or of related technologies

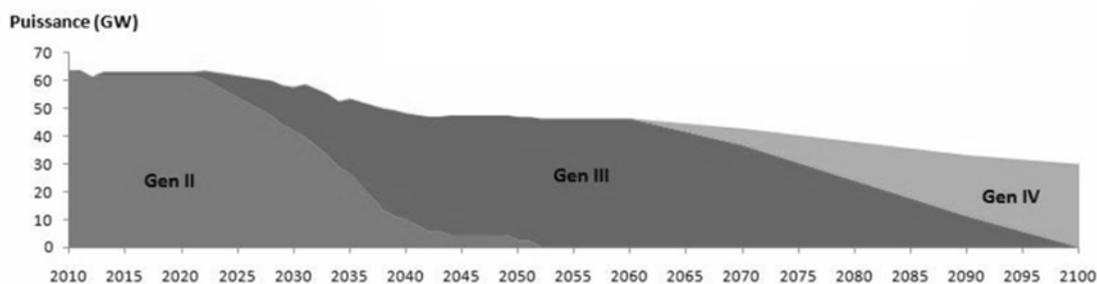
Basically, the participants of public hearings provided information and opinions on energy technologies or policies with which they were engaging. Christian Bataille and Bruno Sido, who were named *rapporteurs* for the survey, worked out a “reasonable path (trajectoire raisonnée)” of nuclear power plant replacement and capacity reduction through 2100, as shown in Fig. 2. On the premise that they should secure “sufficient power supply,” “energy self-sufficiency,” “low environmental effect” and “economic growth,” they made this “reasonable path” considering how far energy conservation and renewable energy could be expanded and how energy technologies could be developed. They adopted the “reasonable path” as an OPECST recommendation. According to this, the share of nuclear energy in the total power generation would fall to 50-60% in 2050 and to about 30% in 2100⁵⁵⁾, which means that the “reasonable path” indicates a slower decline in the

²⁵⁾ Both the Senate and National Assembly sent OPECST the request of survey respectively on March 16 and 23, 2011⁵⁶⁾.

²⁶⁾ In 2010, the Atomic Energy Commission (Commissariat à l’énergie atomique) was renamed the Alternative Energies and Atomic Energy Commission (Commissariat à l’énergie atomique et aux énergies alternatives), but its abbreviated name of CEA remains unchanged.

nuclear energy share than the abovementioned target set by the Energy Transition Act.

Fig. 2 A “Reasonable Path” for Nuclear Power until 2100



Source : C. Bataille and B. Sido, *Rapport de la mission parlementaire sur la sécurité nucléaire, la place de la filière et son avenir (Nuclear Safety, the Scope of the Nuclear Industry and its Future)*, 1, OPECST, p.70 (2011). [in French]

In September 2013, after the inauguration of the President François Hollande who promised an energy transition from nuclear power, OPECST published a survey report on French energy transition²⁷, in which *rapporteur* Sido mentioned again the “reasonable path”⁵⁷). When the bill of Energy Transition Act was discussed at the Senate and National Assembly, the OPECST report (including non-nuclear part) was frequently mentioned, which means that OPECST is working as part of the basis for discussion. Regarding the bill’s provision calling for reducing the share of nuclear energy in power generation to 50% by 2025, OPECST members Bataille, Le Déaut and Anne-Yvonne Le Dain, and another socialist representative, Jean-Louis Dumont, proposed an amendment²⁸ to add a sentence that the reduction pace shall be in line with a change in the share of renewable energy in global energy production⁵⁸), attempting to secure the “reasonable path” in a way that differed from the original one. Although the proposition of amendment was eventually withdrawn, it is worth to note that the members of parliament from the Socialist Party proposed and argued for such amendment to the bill submitted by the socialist administration.

Given the above, OPECST has actively played its role regarding discussions on the Energy Transition Act in France even after the Fukushima accident. However, participants of public hearings regarding the energy transition were almost limited to experts and industries in various fields. This indicates a change from the OPECST function of collecting opinions from the people of various viewpoints. Meanwhile, the energy transition involved not only nuclear energy but also overall energy policy. Therefore, we can say that OPECST in this time chose to limit the types of participants of public hearings to allow their discussions to go in a certain direction in a bid to make concrete policy recommendations while expanding the scope of discussion. Attention should

²⁷ The survey conducted in this time included three public hearings. Characteristics of participants and their remarks in these hearings were similar to that of ② and ④ above. In these hearings, however, one participant from the environmental group Green Peace is identified⁵⁹).

²⁸ On the other hand, the Republicans made proposals to revise the target year 2025 as 2030⁶⁰) or 2050⁶¹) and to clarify that the provision would not become any constraint on investment in generation IV nuclear reactors⁶²), while the Europe Ecology – The Greens (Europe Écologie Les Verts, EELV) proposed to cut the nuclear power generation share to 0%⁶³) by 2040. All of these proposals were disapproved or withdrawn, failing to be adopted.

also be paid to the point that OPECST began its survey and discussions on the energy transition as early as right after the Fukushima accident and accumulated the results in the form of reports, allowing itself to provide material for discussions in a timely manner when the parliament began discussions on the energy transition.

Whether OPECST would deal with the growing public interest in overall energy policy after dealing with the growing public interest in nuclear energy policy will depend on how OPECST would organize discussions at public hearings when they will conduct future survey.

V. Conclusion

This paper analyzed the functions of OPECST at French Parliament with linking the functions to actual policy changes. It clarified that OPECST has functions to collect opinions and requests from people in various positions, compile them into feasible policy options and accumulate these options in reports available for actual policymaking and changes and that OPECST actually performed these functions as needed in dealing with the growing public interest in nuclear energy policy. This means that OPECST makes a path for opinions, including those failing to be sent to decisionmakers under traditional systems, to reach them. OPECST activities in recent years indicated that when the coverage of discussion expanded from nuclear policy to overall energy policy, OPECST successfully compiled knowledge and opinions of numerous experts in various fields into policy recommendations while being independent from the intentions in the administration. This paper successfully depicted such functions of OPECST and activities that were linked to actual policymaking.

As public interest in nuclear energy has grown in Japan since the Fukushima accident, policymaking based not only on the logics of experts and politicians has been required. And in 2015, the government published a long-term energy supply and demand outlook, providing an issue involving overall energy policy through FY2030. In such situation, we should discuss the necessity of a new policy system that have similar functions to those of OPECST. However, much more research may be required for further discussion.

What should be considered first is the possibility of a parliamentary technology assessment organization in Japan. Japan does not have any organization corresponding to the parliamentary technology assessment bodies seen in Western countries. There are some case studies in Japan for such organizations: Suzuki (2010) for example. However, it may be difficult to introduce such organizations because there are many differences among countries: legal and institutional backgrounds, reliability of the member of parliaments and so on. And so, detailed researches are required to clarify the conditions in Japanese society and to consider what kind of parliamentary technology assessment body is suitable for the conditions. Even if they concluded that it is impossible to introduce a parliamentary technology assessment organization in Japan, it does not necessarily mean that Japanese policy system cannot deal with the public interest in nuclear energy. What is important, from the viewpoint of this paper, is not to establish the completely same organization as the Western countries like OPECST but to make a system that has similar functions

to them and sufficient independence.

In Japan at present, various councils in the Ministries exert great influence on actual policymaking. However, they are affiliated with administrative agencies, and so their independence and composition are frequently questioned. Nevertheless, they can collect information and opinions from outside the government and make compiled recommendations available for policy decisions, indicating that they have some functions similar to those of OPECST that we analyzed in this paper. And it might be practical to consider improving or making more effective use of currently working systems rather than denying and destroying them. For example, approaches such as revision of discussion processes at the councils, transferring their secretary functions to other bodies, or creating a policy discussion framework outside the government to counter the councils would contribute to improving the current situation. Given the OPECST case, however, the responsible body of the newly designed council or of the new framework outside the government is required to have enough knowledge of relevant policies or technologies to lead the discussions. So, how to educate and secure human resources to meet such requirement may be a key challenge.

Many surveys and researches will have to be combined to develop an overall framework for discussions for more ideal nuclear energy policy in Japan. We expect that future researches would contribute to activating and enriching such discussions.

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